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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,883	11/13/2003	Satoshi Ishikawa	461-153	6108
23117	7590	11/10/2005		
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			EXAMINER LEUNG, PHILIP H	
			ART UNIT	PAPER NUMBER
			3742	

DATE MAILED: 11/10/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/705,883

Applicant(s)

ISHIKAWA ET AL.

Examiner

Philip H. Leung

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) 10-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11-13-2003.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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**DETAILED ACTION**

1. Applicant's election without traverse of Group I, claims 1-9 in the reply filed on 10-28-2005 is acknowledged.
2. Claims 10-14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 10-28-2005.
3. As a result of the election, the application has been transferred to Examiner Philip Leung in **Group Art Unit 3742**.
4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The title should reflect the use of Microwave Energy.
5. The drawings filed 11-13-2003 are acceptable.
6. The following is a quotation of the second paragraph of 35 U.S.C. 112:  
  
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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7. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The clause “wherein each of said microwave generators is adapted to change the output thereof in accordance with the distribution of said ceramic molded articles in said drying chamber” at the end of claim 1 is only a statement of intended function without any structural limitation for carrying out the same. It is suggested to rewrite it as “a control device for changing the output of each of said microwave generators in accordance with the distribution of said ceramic molded articles in said drying chamber detected by said at least a sensor” or other similar wordings.

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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9. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being obvious over Minobe et al (US 2003/0057205 A1), in view of Goranson (US 6,157,014).

Minobe shows an apparatus for drying ceramic molded articles, comprising a drying chamber 11 for accommodating the ceramic molded articles, a plurality of microwave generators 12 for supplying microwave energy in the frequency range of 300 MHz to 300 GHz into said drying chamber, and a conveyor 17 for charging said ceramic molded articles 21 continuously into said drying chamber, conveying said ceramic molded articles through said drying chamber 11 and delivering said ceramic molded articles from said drying chamber, wherein said drying chamber has arranged therein said plurality of said microwave generators in the direction of conveyance of said conveyor (see Figures 1-5 and paragraphs [0058]-[0103]). It does not show the use of at least a sensor for detecting the distribution of said ceramic molded products in said drying chamber to control each of said microwave generators. Goranson shows a continuous microwave heating oven with a heating chamber 10, 11, a conveyor 12 and a sensing system 30 with a plurality of sensors 31-33 for detecting the distribution of the products being heated to control the power output of the microwave generator 90 accordingly (see Figures 1-6 and col. 3, line 6 – col. 6, line 14). It would have been obvious to an ordinary skill in the art at the time of invention to modify Minobe to use a sensing system to detect the ceramic article distribution to feedback control the microwave power for better heating result, in view of the teaching of Goranson. In regard to claims 2-9, Minobe also shows radio wave absorbers 13 in the chamber wall and the use of reflectors 22. The use of upper and lower generators is well known in the art of microwave conveyor ovens.

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10. Claims 1, 2 and 9 are further rejected under 35 U.S.C. 103(a) as being obvious over Guerga et al (US 3,704,523), in view of Goranson (US 6,157,014).

Guerga shows an apparatus for drying ceramic molded articles, comprising a drying chamber 11 for accommodating the ceramic molded articles 31, a plurality of microwave generators 12, 12' for supplying microwave energy in the frequency range of 300 MHz to 300 GHz into said drying chamber, and a conveyor 4 for charging said ceramic molded articles 21 continuously into said drying chamber, conveying said ceramic molded articles through said drying chamber 11 and delivering said ceramic molded articles from said drying chamber, wherein said drying chamber has arranged therein said plurality of said microwave generators in the direction of conveyance of said conveyor (see Figures 1-3 and col. 5, line 64 – col. 7, line 26). It does not show the use of at least a sensor for detecting the distribution of said ceramic molded products in said drying chamber to control each of said microwave generators.

Goranson shows a continuous microwave heating oven with a heating chamber 10, 11, a conveyor 12 and a sensing system 30 with a plurality of sensors 31-33 for detecting the distribution of the products being heated to control the power output of the microwave generator 90 accordingly (see Figures 1-6 and col. 3, line 6 – col. 6, line 14). It would have been obvious to an ordinary skill in the art at the time of invention to modify Guerga to use a sensing system to detect the ceramic article distribution to feedback control the microwave power for better heating result, in view of the teaching of Goranson. In regard to claim 9, the exact ceramic articles to be dried would have been a matter of intended workpieces and do not add any patentability weight as Guerga obviously can be used for drying any type of molded ceramic articles.

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11. Claim 3 is further rejected under 35 U.S.C. 103(a) as being unpatentable over Guerga et al (US 3,704,523), in view of Goranson (US 6,157,014), as applied to claims 1, 2 and 9 above, and further in view of Warmbier et al (US 5,408,074).

Guerga combined with Goranson shows every feature as claimed except for the use of microwave absorber formed on the chamber wall. Warmbier shows a continuous microwave heating oven with a heating chamber with sections 10.1-10.3 and plural microwave generators 3.1-3.3, a conveyor 2 and two sections of the walls 9.1-9.3 include microwave absorbers (see Figures 1 and 2 and col. 3, line 6 – col. 5, line 6). It would have been obvious to an ordinary skill in the art at the time of invention to modify Guerga combined with Goranson to form at least portion of the chamber walls with microwave absorbing materials so that the ceramic articles can be heated in addition to the direct microwave heating for better heating efficiency and result, in view of the teaching of Warmbier.

12. Claim 4 is further rejected under 35 U.S.C. 103(a) as being unpatentable over Guerga et al (US 3,704,523), in view of Goranson (US 6,157,014), as applied to claims 1, 2 and 9 above, and further in view of Britton (US 3,151,230).

Guerga combined with Goranson shows every feature as claimed except for the use of reflectors arranged between the articles being microwave heated. Britton shows a continuous microwave heating oven with a heating chamber 1 with a microwave generator 2, a conveyor 6 and reflectors 7 between the objects 7 being conveyed through the oven chamber 1 and heat-treated by microwave to ensure effective sealing against stray radiation and more uniform heating (see Figures 1-3 and col. 1, line 52 – col. 2, line 46). It would have been obvious to an

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ordinary skill in the art at the time of invention to modify Guerga combined with Goranson to use a reflector between two articles for more uniform heating and better leakage prevention, in view of the teaching of Britton.

13. Claims 5-8 are further rejected under 35 U.S.C. 103(a) as being unpatentable over Guerga et al (US 3,704,523), in view of Goranson (US 6,157,014), as applied to claims 1, 2 and 9 above, and further in view of Koch (US 4,956,530).

Guerga combined with Goranson shows every feature as claimed except for the use of upper and lower microwave generators. Koch shows a continuous microwave heating oven with a heating chamber having a plurality of microwave generating devices 8,9 arranged above and below the objects being microwave heated (see Figures 1 and 2 and col. 3, line 41 – col. 4, line 62). It would have been obvious to an ordinary skill in the art at the time of invention to modify Guerga combined with Goranson to arrange the microwave generators on the upper and lower parts of the heating chambers for more uniform heating efficiency and result, in view of the teaching of Koch. The exact arrangement would have been a matter of engineering expediency depending on the exact heating pattern desired according to the load characteristics.

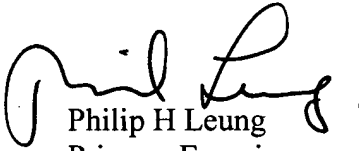


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip H Leung whose telephone number is (571) 272-4782.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 472-4777. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Philip H Leung  
Primary Examiner  
Art Unit 3742

P.Leung/pl  
11-9-2005